

HIV/AIDS PREVENTION AND CONTROL SERIES

Management

SIS

STANDARDS



AIDSCAP



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Family Health International (FHI) is a non-governmental organization that works to improve reproductive health around the world, with an emphasis on developing nations. Since 1991, FHI has implemented the AIDS Control and Prevention (AIDSCAP) Project, which is funded by the United States Agency for International Development (USAID). FHI/AIDSCAP has conducted HIV/AIDS prevention programs in more than 40 countries, and the Latin America and Caribbean Regional Office (LACRO) has implemented interventions in 14 countries within the region.

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For further information, contact:
Latin America and Caribbean Regional Office
AIDSCAP/Family Health International
2101 Wilson Blvd, Suite 700
Arlington, VA 22201
Telephone: (703) 516-9779
Fax: (703) 516-0839

The HIV/AIDS Prevention and Control SYNOPSIS Series

STD SYNDROMIC MANAGEMENT



Series Editor:

M. Ricardo Calderón

AIDSCAP/Family Health International
Arlington, VA, USA



Prepared by:

Irving Hoffman

University of North Carolina
Chapel Hill, NC

Bea Vuylsteke

Institute of Tropical Medicine
Antwerpen, Belgium



Project Coordinator:

Mary L. Markowicz

AIDSCAP/Family Health International
Arlington, VA, USA



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ACRONYMS

AIDS	acquired immune deficiency syndrome
AIDSCAP	AIDS Control and Prevention Project
CBO	community-based organization
CSW	commercial sex worker
FHI	Family Health International
GUD	genital ulcer disease
HCP	health care provider
HIV	human immunodeficiency virus
IGND	intracellular gram-negative diplococci
LAC	Latin America and the Caribbean
LACRO	Latin America and Caribbean Regional Office
MOH	Ministry of Health
NACP	National AIDS Control Program
NGO	non-governmental organization
NGU	non-gonococcal urethritis
PID	pelvic inflammatory disease
PVO	private voluntary organization
RPR	rapid plasma reagin
STD	sexually transmitted disease
USAID	United States Agency for International Development
WHO	World Health Organization

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PROLOGUE

The HIV/AIDS Prevention and Control SYNOPSIS Series is a summary of the lessons learned by the Latin America and Caribbean Regional Office (LACRO) of the AIDS Control and Prevention (AIDSCAP) Project. AIDSCAP is implemented by Family Health International (FHI) and funded by the United States Agency for International Development (USAID). The series is a program activity of the LACRO Information Dissemination Initiative and was created with several goals in mind:

- to highlight the lessons learned regarding program design, implementation, management and evaluation based on five years of HIV/AIDS prevention and control experience in LAC countries
- to serve as a brief theoretical and practical reference regarding prevention interventions for HIV/AIDS and other sexually transmitted infections (STIs) for program managers, government officials and community leaders, non-governmental organizations (NGOs), private voluntary organizations (PVOs), policy and decision makers, opinion leaders, and members of the donor community
- to provide expert information and guidance regarding current technical strategies and best practices, including a discussion of other critical issues surrounding HIV/AIDS/STI programming
- to share lessons learned within the region for adaptation or replication in other countries or regions to advance new technical strategies that must be taken into consideration in order to design and implement more effective prevention and control interventions
- to advocate a holistic and multidimensional approach to HIV/AIDS prevention and control as the only way to effectively stem the tide and impact of the pandemic

AIDSCAP (1991-1997) was originally designed to apply the lessons learned from previous successful small-scale prevention projects (1987-1991) to develop comprehensive programs to reduce the sexual transmission of the virus, the primary mode of transmission. AIDSCAP applied three primary strategies — Behavior Change Communication (BCC), STD Prevention and Control, and Condom Programming — along with supporting strategies of Behavioral Research, Policy Development and Evaluation.

The success of this approach, based on the combination of strategies and targeted interventions, has been widely documented. The AIDSCAP Project, in fact, has been recognized as among the best and most powerful international HIV/AIDS prevention programs to date.¹ AIDSCAP has worked with over 500 NGOs, government agencies, community groups and universities in more than 40 countries; trained more than 180,000 people; produced and disseminated some 5.8 million printed materials, videos, dramas, television and radio programs, and advertisements; reached almost 19 million people; and distributed more than 254 million condoms.²

However, the pandemic continues to escalate at a rate that outpaces our successes. Thus, we need to build upon these successes, learn from our experiences, and determine what has worked and what is missing in order to respond with added effect in the future. The magnitude and severity of the HIV/AIDS pandemic calls for boldness, flexibility, wisdom and openness. The world cannot afford to continue to fight HIV/AIDS only with current thinking and tools. We must look toward new thinking and strategies that complement and carry the current state-of-the-art approaches forward in the fight against HIV infection.

Therefore, LACRO endorses, promotes and elevates *Gender Sensitive Initiatives* (GSIs), *Civil-Military Collaboration* (CMC), *Religious-Based Initiatives* (RBIs), and *Care & Management* (C&M) as the new prototype of technical strategies that must be incorporated on par with the strategies that have been implemented to date. Walls, barriers and biases have to come down in

order to unlock the strengths, benefits, potential, synergy and/or resources of GSIs, CMC, RBIs and C&M.

More importantly, approaches that compartmentalize strategies can no longer be justified. Despite the efforts to integrate and coordinate amongst and between technical strategies and different sectors of society, prevention programming is barely scratching the surface of what a real comprehensive effort should be. One of the most important lessons learned about HIV/AIDS is that it is not only a medical problem, nor is it exclusively a public health problem. Rather, the pandemic is in addition a socioeconomic problem and, as such, threatens the sustainable development of developing countries and challenges the ethical foundations of the developed world. HIV/AIDS has become a challenge to health, development and humanity.

For lasting success, a genuine multidimensional approach is urgently needed. One that demands new forms of wealth distribution, educational opportunities and development; attempts to resolve the inequalities in gender and power; acknowledges the individual, environmental, structural and superstructural causes of and solutions for the pandemic; and aims to balance the disparity between the "haves" and the "have-nots," resulting in more sustainable, equitable, effective and compassionate efforts.

Therefore, the SYNOPSIS Series reaffirms that current HIV/AIDS prevention and control strategies work, and contends that new technical strategies are needed and can be effective and complementary. The Series also strongly advocates for, and will discuss in a separate issue, the Multidimensional Model (MM) for the prevention and control of the pandemic. This model must guide national, regional and international planning and programming in order to achieve measurable and significant gains that can truly effect changes at the individual, societal, environmental and structural levels.

We trust the reader will be open to our futuristic thinking and will contribute to the further development of the strategies presented here as well as others. We hope the SYNOPSIS Series will

stimulate discussion and reflection, propel continued dialogue, and encourage the pioneering of new combinations of innovative approaches.

A handwritten signature in black ink, reading "R. Calderón". The signature is written in a cursive style with a horizontal line underneath the name.

M. Ricardo Calderón, MD, MPH, FPMER.
Regional Director
Latin America and Caribbean Regional Office
AIDSCAP/Family Health International

HOLOGRAPHIC OVERVIEW:

This SYNOPSIS booklet discusses the importance of Syndromic Management of Sexually Transmitted Diseases (STDs) through a holographic approach. Holography is a special photographic technique that produces images of three dimensional objects. This photographic record is called a hologram, and one of its main applications is that any fragment of the hologram can regenerate the entire image, even if the fragment is extremely small. In other words, if a negative from an ordinary picture is cut into two, the print from each half would only show half of the picture. Conversely, if a holographic negative is cut in two, the print from each half would show the entire picture. If these halves are cut again, the print from any one of the pieces will reconstruct the whole picture.^{3,4,5}

Utilizing the holographic model, this booklet was written such that any one of the sections (holograms) will provide the reader with an understanding of the whole subject matter. First, we describe the entire strategy or topic of discussion in one sentence, the widespread definition and/or our own definition of the subject (Hologram 1). Next, we present a one-paragraph abstract of the topic (Hologram 2), expanding upon the original definition. Then, we present the topic by providing a summary or recapitulation of the main points of each of the sections of the booklet (Hologram 3). Finally, the entire strategy is again presented by virtue of the complete text of the booklet (Hologram 4).

We anticipate that the Holographic Overview of STD Syndromic Management will benefit both the seasoned professional and the novice. It provides a quick, general overview of the syndromic approach as well as context and background. It also directs the reader to specific sections that may be of greatest interest or that the reader would like to review first or at a later date. Thus, we hope this approach will enable the reader to make fuller use of the booklet as a reference guide, as it provides a simple and concise definition of STD Syndromic

Management, a brief description of the topic, a summary of the discussion, and finally, the complete text — all in one document.

The reader should note that while we have tried to include the key issues surrounding STD case management in this SYNOPSIS, the booklet is not meant as an exhaustive discussion of all of the issues regarding the critical role of the syndromic approach in the fight against HIV/AIDS.

The Whole Strategy

Hologram 1: The Definition

STD Syndromic Management is the diagnosis and treatment of selected STDs based on the identification of a syndrome through a clinical flowchart. A *syndrome* is a group of symptoms (what the patient feels or has noticed) and easily recognized signs (what the health care provider finds on examination) associated with a number of well-defined etiologies (the specific organisms causing disease). Once a syndrome has been identified, treatment can be provided for the majority of the organisms responsible for that syndrome. A *clinical flowchart* is a step-by-step standardized guide to medical decision making.

The Whole Strategy

Hologram 2: The Abstract

The control of sexually transmitted diseases is an essential component of all public health programs. Controlling STDs is important because they not only cause great morbidity but as studies have shown, left uncontrolled, they significantly increase the spread of HIV. The worldwide burden of STDs — primarily gonorrhea, chlamydial infection, trichomoniasis, syphilis and chancroid — is staggering. The World Health Organization (WHO) estimates that between 150 to 330 million new cases of curable STDs are transmitted each year. The development of syndromic management guidelines and other efforts to improve STD prevention and control at “points of first encounter” within the

health system were prompted by the rapid spread of the HIV/AIDS pandemic. One reason for this new attention to STDs is obvious: the sexual behaviors that lead to STDs also promote the spread of HIV. Consequently, STD Syndromic Management has proven to be the best approach that can be offered to patients presenting with STD symptoms. It is adapted to primary health care settings in developing countries, and makes it possible for almost every health care worker to offer prompt diagnosis and treatment to patients with STD symptoms without the need for sophisticated laboratory tests. In order to assure well-accepted, quality STD care, accurate and validated syndromic algorithms are not sufficient. Continued training and supervision of health care providers is of utmost importance. This can only occur in an environment of cooperation between implementing agencies and a grassroots mandate that this public health approach to patient care is quality care for the individual as well as for the community.

The Whole Strategy

Hologram 3: *The Summary*

Introduction

Developing country health providers at all levels, in both the public and private sectors, are confronted with many patients with STDs. STD-related complaints are among the most common reasons why adults seek health care in many countries. However, primary health care facilities in developing countries and other resource-poor settings face many constraints in the management of patients with STDs. Comprehensive case management of STDs is the cornerstone of STD control. This includes the diagnosis and treatment of the patient, partner treatment, health education, and condom education, promotion and distribution. Prompt and effective case detection and treatment result in immediate benefits for individual patients, and reducing the duration of patients' infectiousness decreases the incidence and prevalence of STDs in the population.

HIV infection is not equally distributed around the world. It is estimated that 68 percent of all infections are found in Sub-Saharan Africa, 10 percent in Latin America and the Caribbean, 7.5 percent in Southeast Asia, 7.5 percent in North America and 6 percent in Europe. Similarly, STDs are not equally distributed globally. Between 40 and 50 percent occur in Southeast Asia, 20 to 25 percent in Sub-Saharan Africa, 10 to 11 percent in Latin America and the Caribbean, 5 to 6 percent in Northern Asia and Eastern Europe, and 1 to 2 percent in North America. STD prevalence rates vary from country to country due to under-recognition, incomplete reporting and/or delays in reporting.

Studies have shown that STDs enhance the transmission of HIV, both infectiousness and susceptibility. Therefore, improving STD prevention and treatment represents one of the main HIV prevention strategies. Critical to the development of optimal strategies for HIV prevention and control is understanding the role of other STDs in the transmission of HIV, the role of STDs in the progression of HIV disease, and the role of HIV infection in alterations of natural history, diagnosis, or response to therapy of STDs. In a landmark pilot study in Mwanza, Tanzania, the use of the syndromic approach to STD treatment reduced HIV incidence by 42 percent. Subsequent research in Malawi and Cote d'Ivoire documented that STDs are associated with higher HIV infection rates and that STD treatment can make HIV-positive men less infectious.

STD Syndromic Management

An effective and efficient public health program needs a tool that is rapid, inexpensive, simple, accurate and that can be implemented on a large scale by health providers with diverse levels of expertise and training. The syndromic approach is the answer to many of the obstacles to efficient STD case management in developing countries. It allows health care workers to make a diagnosis without sophisticated laboratory tests. It is based on clinical syndromes and, in some cases, assessments of an individual patient's risk for STD infection. Etiologic diagnosis of most STDs can be difficult, particularly in women. Even in settings with access to reliable laboratory facilities, the delays inherent in reporting test

results hinder timely treatment of STD cases. Flowcharts rationalize and standardize clinical decision making. Their use can also standardize diagnosis, treatment and referral. The advantages of syndromic management include: can be implemented on a large scale, rapid and simple, high sensitivity in most cases, laboratory tests are not necessary, cost effective, clinicians at any level and expertise can succeed with this approach, and simplifies data collection and surveillance. Finally, theoretical analysis indicates that the cost per patient managed through syndromic diagnosis could be four times less than through clinical diagnosis and seven times less than etiologic diagnosis. The disadvantages include the following: tends to over treat due to decreased specificity, does not perform well in low prevalence settings, ignores asymptomatic cases, may overuse expensive drugs, management of cervical infection is problematic, and notifying sexual contacts without proof of infection in the index case can be problematic.

Designing STD Flowcharts

A team of public health specialists should design diagnostic and therapeutic flowcharts for use at the national level. Key design people include the coordinators of national programs, including STD/AIDS control, primary health care, essential drugs, family planning and maternal and child health. It is advisable also to involve gynecologists, microbiologists, genito-urinary specialists and pharmacists to ensure their cooperation and increase the acceptance of the flowcharts. Background information on local etiologies of STD syndromes is essential in designing an STD management flowchart. Decisions on the most cost-effective treatments must be based on local or regional antimicrobial susceptibility patterns, results of treatment trials, toxicity data and the cost of the drugs. Flowcharts should be adapted to the level of development of the health services in order to ensure efficient management of STDs. Local and cultural perceptions about STDs and health-seeking behavior also determine the usefulness of certain flowcharts. The original WHO flowcharts were developed for six syndromes: urethral discharge, vaginal discharge, pelvic inflammatory disease, genital ulcer disease, swollen scrotum and neonatal conjunctivitis. The first four are discussed in this SYNOPSIS.

Other Components of Comprehensive STD Case Management

The syndromic approach to STD case management includes a comprehensive public health approach to patient care. In addition to diagnosis and treatment, comprehensive case management includes partner referral and treatment, health education, and condom education, promotion and distribution. Services targeting high-risk populations and comprehensive screening of syphilis for antenatal women should also be included, along with the re-training of health care providers, whether physicians, nurse practitioners or public health nurses.

Introduction of STD Syndromic Management in LAC

The adoption of syndromic management requires considerable effort at the policy level as well as research to validate and adapt WHO algorithms in different settings. A consensus must be developed with local officials and health care providers on the need for a standardized approach to STD management and national guidelines for syndromic management of STDs. The success of this collaborative process lays the foundation for subsequent efforts to strengthen STD services in a country. AIDSCAP worked to improve STD care at points of first encounter through technical assistance and training in syndromic management, communication, and STD program management for providers, managers and pharmacists. Despite initial resistance to the syndromic approach, follow-up assessments of the STD care provided by trainees in the different countries found marked increases in the percentages of clients receiving effective treatment. These and other findings, as well as many lessons learned and recommendations, are derived from the experiences of introducing STD Syndromic Management in the five AIDSCAP priority countries in Latin America and the Caribbean — Haiti, Jamaica, Brazil, Honduras and the Dominican Republic.

Lessons Learned

Lessons learned from the introduction of STD Syndromic Management are classified into four categories:

- 1) *Building Consensus and Communication*: building the foundation for improving care at points of first encounter requires intensive effort at the policy and program management levels; biologic studies of STD prevalence and antibiotic susceptibility in a country are essential to building consensus on national STD treatment guidelines; and training alone is not enough to implement syndromic management into an existing health care system.
- 2) *Development and Implementation of STD Flowcharts*: a single, universally applicable model for STD flowcharts does not exist; flowcharts should be validated in a field audit to assure efficacy; and a flowchart will always be a compromise between diagnostic accuracy and technical and financial realities.
- 3) *Improving Access to STD Care*: STD Syndromic Management is perfectly adapted to primary health care settings; research findings from several countries confirm the impression that many people seek STD treatment outside the formal medical system; the achievements of an STD control program depend to a large extent on the successful management of STDs at a patient's point of first encounter with the health care system; and drug availability is the most essential component of the clinical management of STDs.
- 4) *Detecting Asymptomatic STDs*: current risk assessment strategies are not a valid tool for identifying STDs in women without symptoms; partner referral is possible in a variety of settings; health workers without any laboratory experience can be trained to perform accurate syphilis blood tests, making it possible to expand syphilis screening of pregnant women.

Recommendations

The following steps are recommended in order to establish a comprehensive STD case management system: collect data regarding local STD prevalence, antimicrobial susceptibility patterns and STD beliefs and practices; review epidemiological data to reach

consensus on national STD treatment guidelines; continue training and supervision of health care providers in syndromic management, program management and rapid diagnostic tests for STDs; work to ensure required drugs are available; improve traditional STD services with alternative or non-traditional approaches; promote early treatment seeking behavior and partner referral systems; conduct syphilis screening and/or treatment for pregnant women.

The Whole Strategy

Hologram 4: *The Detailed Description*

INTRODUCTION

The control of sexually transmitted diseases (STDs) is an essential component of all public health programs. Controlling STDs is important because they not only cause great morbidity but as studies have shown, left uncontrolled, they significantly increase the spread of HIV. Developing country health providers at all levels, in both the public and private sectors, are confronted with many patients with STDs. In some countries, STD-related complaints are among the most common reasons why adults seek health care. However, primary health care facilities in developing countries and other resource-poor settings face several constraints in the management of patients with STDs. These constraints include lack of access to the laboratory technology necessary for making etiologic diagnoses of STDs, shortages of well-trained staff, high workloads and limited staff time available per patient. Thus, in resource-poor settings the appropriate STD management tool should enable health care workers to make a correct diagnosis in most patients within a short time and without sophisticated laboratory tests, specialized skills, or, preferably, the need for a repeat visit by the patient.

STDs have devastating health effects, especially for women. STDs, such as gonorrhea and chlamydia, are important factors that cause pelvic inflammatory disease (PID), chronic pelvic pain, ectopic pregnancies, sterility, pre-term deliveries and, along with syphilis, poor birth outcomes. Venereal warts have been linked with cervical cancer. If a mother is infected with an STD, such as syphilis, gonorrhea, chlamydia, or hepatitis B, at the time of birth, she may transmit the infection to the child. Some of the effects of these infections on a newborn are conjunctivitis, pneumonia, crippling bone and teeth disorders, and liver disease.

There are many components of a successful STD control program. These include prevention programs to reduce high risk

behaviors, promote increased and correct use of condoms, improve screening of asymptomatic populations looking for undetected disease, and aggressively pursue treatment for sexual partners of index cases. However, comprehensive case management of STDs is the cornerstone of STD control. Prompt and effective case detection and treatment result in immediate health benefits for individual patients. Furthermore, reducing the duration of patients' infectiousness decreases the incidence and prevalence of STD in the population. In addition, it is possible to detect and treat asymptomatic STDs by identifying the sexual contacts of STD patients.

This booklet begins with an overview of the burden of HIV and STD on countries and the role of STD on HIV transmission. The syndromic management of STDs is then presented, including its advantages, disadvantages and cost-effectiveness. The design of STD flowcharts follows, with specific examples of flowcharts provided for urethral discharge syndrome in men, vaginal discharge syndrome in women, pelvic inflammatory disease and genital ulcer disease. Other components of comprehensive STD case management are also examined, such as partner treatment, health education, training, and syphilis screening and treatment. The application of STD syndromic management specifically in Latin America and the Caribbean is presented, highlighting the AIDSCAP priority countries of Haiti, Jamaica, Brazil, Honduras and the Dominican Republic. Finally, major lessons learned are discussed, and the booklet concludes with recommended steps to implement the syndromic approach to improve client-centered STD service delivery.

HIV and STD Global Burden

HIV infection is not distributed equally around the world. It is estimated that there are over 20 million people living with HIV infection worldwide. Approximately 68 percent of these individuals are in Sub-Saharan Africa, where the prevalence among sexually active adults has reached one third in some urban centers. Ten percent of people living with HIV infection are in Latin America and the Caribbean, although the prevalences vary widely throughout the region. Southeast Asia represents 7.5 percent of the total HIV

infections, although that rate is rapidly rising. Similarly, 7.5 percent of HIV infections originate in North America, although the epidemic has stabilized in this region as it has in Europe where 6 percent of all infections reside.⁶

In the Latin America and Caribbean region, Haiti was the first country to be affected by HIV. Based on in-country data collected in the region between 1994 and 1996, the HIV prevalence among Haitian adults is 10 percent in urban areas and 4 percent in rural areas. Brazil accounted for the largest number of reported AIDS cases in the region due to its huge population and an estimated .4 percent prevalence in the sexually active adult population, with higher rates among high risk individuals. Among STD clinic attendees in Rio de Janeiro, men had an HIV prevalence of 18 percent and women 5 percent. In Jamaica, the HIV prevalence among adults was similar to that of Brazil, .4 percent. STD clinic attendees in urban Jamaica had an HIV prevalence of 4 percent. In the Dominican Republic, HIV prevalence among antenatal women ranged from 1 to 2 percent but was as high as 8 percent in one urban area. The prevalence among STD clinic attendees varied from 1.5 percent among men or women presenting with either a urethral discharge or vaginal discharge, to 16.7 percent among patients presenting with genital ulcers. In Honduras, the prevalence of HIV among pregnant women in urban areas was 2 to 4 percent.

The worldwide burden of STDs is staggering. The World Health Organization estimates that between 150 and 330 million new cases of curable STDs are transmitted each year.

of HIV among pregnant women in urban areas was 2 to 4 percent.

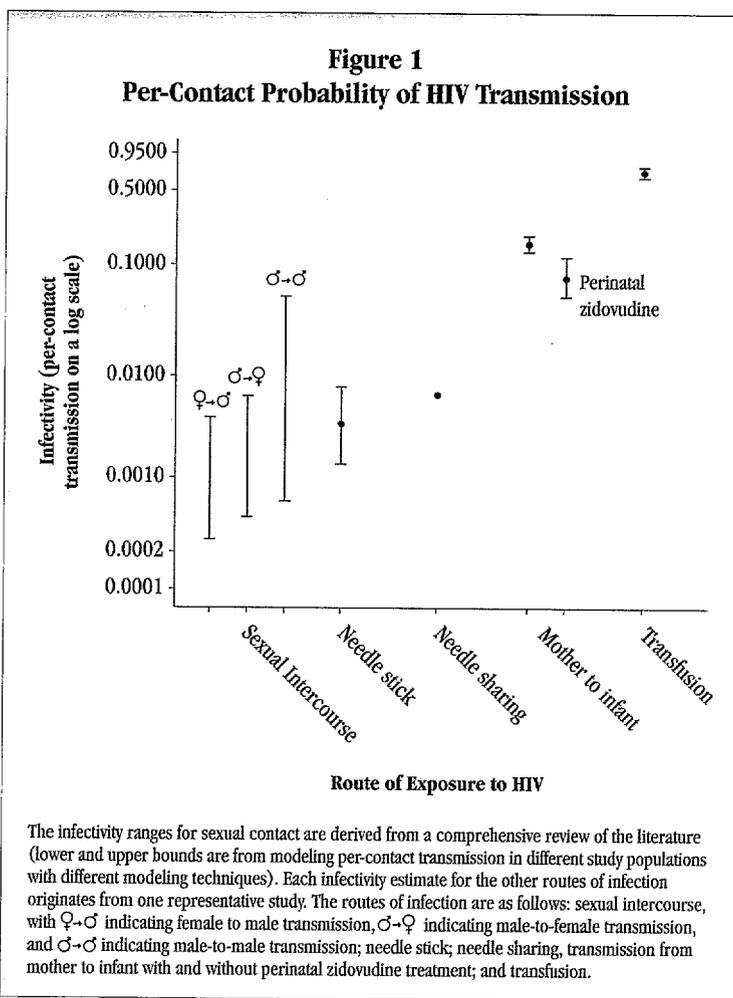
The worldwide burden of STDs is staggering. The World Health Organization estimates that between 150 and 330 million new cases of curable STDs are transmitted each year. These curable STDs include gonorrhea, chlamydial infection, trichomoniasis, syphilis, and chancroid. Between 40 and 50 percent of these STD cases occur in Southeast Asia, between 20 and 25 percent in Sub-Saharan Africa, 10 to 11 percent in Latin America and the

Caribbean, 5 to 6 percent from Northern Asia and Eastern Europe, and 1 to 2 percent in North America.⁶

In Latin America and the Caribbean, the STD prevalence rates and completeness of STD reporting vary from country to country. Between 1993 and 1997, STD prevalence rates were examined in the region. In Brazil, the prevalence of either chlamydia or gonorrhea among asymptomatic women or women presenting with vaginal discharge was similar, between 12 and 14 percent. In the general population of adults, the syphilis serology rate was 1 percent, but among STD clinic attendees it was 8 to 11 percent. Three to six percent of both men and women clinic attendees presented with genital ulcers. In the Dominican Republic, among women complaining of vaginal discharge, 8 percent were infected with either gonorrhea or chlamydia and 3 percent had positive syphilis serologies. Among men with symptoms of urethral discharge, 36 percent had gonorrhea and 29 percent had chlamydial infections. Of those men with genital ulcers, 37 percent had herpes, 16 percent had chancroid and 16 percent had syphilis. In Jamaica, symptomatic women had a chlamydial or gonococcal infection rate of 34 percent, and asymptomatic women had a chlamydial or gonococcal prevalence of 15 percent. Approximately 6 percent of STD clinic attendees presented with genital ulcers. Of these, 44 percent had genital herpes, 19 percent had chancroid and 10 percent had syphilis. In Haiti, 12 percent of asymptomatic women had either gonorrhea or chlamydia, and 35 percent were infected with trichomoniasis. Eleven percent had positive syphilis serologies. In Honduras, the actual prevalence of STDs is unknown, but reported cases show a population-based rate of gonorrhea at .04 percent and .06 percent for syphilis. Probably a better marker for syphilis prevalence is the .32 percent of pregnant women who had positive syphilis serologies.

Role of STD on HIV Transmission

Although the probability of HIV infection through sexual contact varies greatly, it appears to be lower than that of infection through other routes of exposure (see Figure 1).⁷ The variability among and within routes of HIV exposure depends partly on the viral dose and also on whether the virus is transmitted directly into the blood or onto a mucous membrane.



HIV infectivity is the average probability of transmission to another person after that person is exposed to an infected host. Infectivity plus two other parameters — the duration of infectiousness and the average rate at which susceptible people change sexual partners — determines whether the epidemic grows or slows. On a population level, all three corners of the

classic epidemiologic triangle — susceptibility and infectiousness, the social, cultural and political milieu, and HIV type — determine HIV infectivity.

The development of syndromic management guidelines and other efforts to improve STD management and prevention at “points of first encounter” with the health system were prompted by the rapid spread of the HIV/AIDS epidemic.

The development of syndromic management guidelines and other efforts to improve STD management and prevention at “points of first encounter” with the health system were prompted by the rapid spread of the HIV/AIDS epidemic. One reason for this new attention to STDs is obvious: the sexual behaviors that lead to STDs also promote the spread of HIV. However, early in the HIV/AIDS epidemic, results of epidemiological and laboratory research suggested STDs actually enhance HIV transmission, both infectiousness and susceptibility. Given this evidence of a

link between HIV and other STDs, the AIDSCAP project of Family Health International made improving STD prevention and treatment one of its main HIV prevention strategies when the project began in 1991.

Critical to the development of optimal strategies for HIV control is understanding the role of other STDs in the transmission of HIV, the role of STDs in the progression of HIV disease, and the role of HIV infection in alterations of natural history, diagnosis, or response to therapy of STDs. Of 75 studies conducted on the role of STDs in HIV transmission, 15 analyses of clinical examinations or laboratory evidence of STDs, adjusted for sexual behavior, showed that both STDs that cause genital ulcers and non-ulcera-

Studies showed that both STDs that cause genital ulcers and non-ulcerative STDs, such as gonorrhea and chlamydia, increase the risk of HIV transmission approximately three- to ten-fold. Additional studies suggest that, at a community level, HIV infection may increase the prevalence of some STDs. This "epidemiological synergy" may be responsible for the explosive growth of the HIV pandemic in some populations.⁸

tive STDs, such as gonorrhea and chlamydia, increase the risk of HIV transmission approximately three- to ten-fold. Preliminary data from 83 reports on the impact of HIV infection on STDs suggest that, at a community level, HIV infection may increase the prevalence of some STDs (e.g., genital ulcers). If co-infection with HIV prolongs or augments the infectiousness of individuals with STDs, and if the same STDs facilitate transmission of HIV, these infections may greatly amplify one another. This "epidemiological synergy" may be responsible for the explosive growth of the HIV pandemic in some populations.⁸

The results of several important studies have confirmed the validity of the HIV prevention strategy to improve STD prevention and treatment. In a landmark pilot study in Mwanza, Tanzania,⁹ use of the syndromic approach to STD treatment that AIDSCAP and the WHO had advocated worldwide reduced HIV incidence by 42 percent. The objectives of the community-based randomized intervention trial were to establish a program based on syndromic management for the improved diagnosis and treatment of STDs in the general population, and to measure the impact of this intervention

on the incidence of HIV infection and on the prevalence and incidence of STDs. The improved STD services, which decreased HIV incidence by 42 percent over a 2 year period, were designed to be feasible rather than optimal, were integrated with the Tanzanian primary-health-care system, and were based on syndromic treatment algorithms as recommended by WHO.¹⁰

In a landmark pilot study in Mwanza, Tanzania,⁹ use of the syndromic approach to STD treatment reduced HIV incidence by 42 percent.

Because this observed reduction occurred in both sexes, and was observed consistently in all matched pairs of study communities, and in the absence of sexual behavior change, the most plausible explanation for these results is that the STD treatment program reduced HIV incidence by shortening the average duration of STDs, thus effectively reducing the probability of HIV transmission.

Recent research in Malawi¹¹ and Cote d'Ivoire¹² produced strong biological and epidemiological evidence that STDs are associated with higher HIV infection rates and that STD treatment can make HIV-positive men less infectious. In the Malawi study, HIV-1 seropositive men with urethritis had HIV-1 RNA concentrations in seminal plasma eight times higher than those in seropositive men without urethritis. After the urethritis patients received antimicrobial therapy directed against STDs based on syndromic management, the concentration of HIV-1 RNA in semen decreased significantly. These results suggest that urethritis increases the infectiousness of men with HIV-1 infection and that this infectiousness can be reduced with prompt and effective treatment.

And finally, in a large epidemiologic study conducted in Cote d'Ivoire,¹² among more than 1,000 sex workers, the rate of HIV was between 2 and 5 times greater in those women who had at least 1 STD (gonorrhea, chlamydia, trichomoniasis, syphilis, chancroid) compared to those women who had no STDs found.

STD SYNDROMIC MANAGEMENT

Definition

The syndromic approach is an answer to many of the obstacles to efficient STD case management in developing countries. It is based on identifying a syndrome, a group of symptoms (what the patient feels or has noticed) and easily recognized signs (what the clinician finds on examination) associated with a number of well-defined etiologies (the specific organisms causing disease). Once a syndrome has been identified, treatment can be provided for the majority of the organisms responsible for that syndrome.

The syndromic approach allows health care workers to make a diagnosis without sophisticated laboratory tests. Several STD syndromes can be managed easily and rapidly using clinical flow-

The syndromic approach is an answer to many of the obstacles to efficient STD case management in developing countries.

The World Health Organization recommends national STD control programs incorporate diagnostic and therapeutic flowcharts into their STD management guidelines.¹⁰

charts for diagnosis and treatment. A clinical flowchart (also known as an algorithm or a decision tree) depicts a path of diagnostic reasoning. It is a logical, step-by-step, standardized guide to medical decision making. The World Health Organization recommends national STD control programs incorporate diagnostic and therapeutic flowcharts into their STD management guidelines.¹⁰

The syndromic approach to STD case management provides health workers in low-resource settings with practical tools to improve the diagnostic and treatment process. Based upon what is known about the prevalence of specific STDs in a given health care setting (including drug resistant strains), case management protocols are developed using common symptoms of STDs (urethral discharge, genital ulcer, vaginal dis-

charge, lower abdominal pain, scrotal swelling) as the starting point and the patient management decision as the end point. As with all good STD management approaches, syndromic STD management also directs health workers to educate clients about STD prevention practices and partner notification.

Theoretical Foundation

STD syndromic management relies on clinical syndromes (for instance, vaginal discharge, genital ulcer, or urethral discharge) and, in some cases, assessments of an individual patient's risk for STD infection to make presumptive diagnoses of selected STDs. In many areas where definitive diagnostic tests generally are not available and/or where use of the tests and consequent treatment delays are not practical, syndromic diagnosis may offer a feasible approach to the management of STDs in men and women.

A fundamental goal of STD control programs is early detection and treatment of disease, preferably at the point of first encounter between the patient and the health system. In many countries, STD patients are seen more often in private facilities (private physicians, clinics, or pharmacies) and primary health care settings than in specialized STD clinics. Therefore, an effective and efficient public health program needs a tool that is rapid, inexpensive, simple, accurate, and can be implemented on a large scale by health providers with diverse levels of expertise and training.

Etiologic diagnosis of most STDs can be difficult, particularly in women. While simple diagnostic tests are being investigated, the range of existing laboratory tests appropriate for low-resource settings is limited. Both gonococcal and chlamydial infections in women currently have to be diagnosed through culture techniques that are expensive and technically demanding or through antigen/genomic detection (available tests are expensive and not always appropriate in low-resource settings). Gonococcal infections in men can be diagnosed through microscopy, assuming a microscope and trained microscopist are available. RPR/VDRL and TRUST tests can be used to screen for syphilis but require serum or plasma.

Flowcharts standardize clinical decision making. This standardization makes STD reports from different health facilities comparable; simplifies STD data collection and analysis; facilitates supervision of health care workers; ensures STD patients receive the same treatment for a given condition in every health facility; and delays the development of antimicrobial resistance of sexually transmitted microorganisms.

Even in settings with access to reliable laboratory facilities, the delays inherent in reporting test results hinder the timely treatment of STD cases. Referral of cases, even in a well-structured health system, remains problematic in practice due to constraints in time, resources, and social barriers. Delays in treatment can undermine the confidence a patient has in health providers; STD patients expect a health worker to make a prompt and reasonably accurate diagnosis. Furthermore, delays in treatment result in loss of follow up to a significant proportion of clients.

It is generally agreed that the use of appropriate syndromic diagnosis protocols in well-managed, adequately monitored facilities with ready access to therapeutic drugs would be a considerable improvement over how STDs currently are managed in many settings. The small proportion of patients who have access to STD services in many developing countries are often diagnosed according to a given provider's "best guess" as to the cause of specific symptoms and treated with available drugs that may or may not be appropriate. Experience has shown that even

highly skilled STD specialists will misdiagnose or miss concurrent infections in a significant proportion of cases when making diagnoses on the basis of their own clinical experience.^{13,14}

Flowcharts, on the other hand, rationalize and standardize clinical decision making. Their use can also standardize diagnosis, treatment and referral. Such standardization makes STD reports from different health facilities comparable; simplifies STD data collec-

tion and analysis, which in turn facilitates surveillance and planning (e.g., the purchase of drugs and other supplies); facilitates supervision of health care workers since the approach is the same in every health facility; ensures STD patients receive the same treatment for a given condition in every health facility, thereby enhancing confidence in health services; and delays the development of antimicrobial resistance of sexually transmitted microorganisms.

Advantages and Disadvantages of Syndromic Management

Advantages

- can be implemented on a large scale
- rapid and simple
- high sensitivity in most cases
- lab tests not necessary
- cost effective
- clinicians at any level and expertise can succeed with this approach
- simplifies data collection and surveillance

Disadvantages

- tends to over treat due to decreased specificity
- vaginal discharge algorithm does not perform well in low prevalence settings
- management of cervical infection is problematic
- ignores asymptomatic cases
- may overuse expensive drugs
- notifying sexual contacts without proof of infection in the index case is difficult

Advantages

Syndromic management is expedited, patient-centered care that can be implemented on a large scale. It is rapid and convenient for both patient and health care provider. As treatment can be provided at the first visit, there is usually no need for return visits, no risk for further disease spread, and less risk for complications and sequelae. Syndromic management allows health care workers to make a diagnosis without sophisticated laboratory tests, and it is theoretically more cost effective than the etiologic or clinical diagnosis. It requires minimum training and can be used by a broad range of health care workers as the flowcharts are simple and easy to follow. The syndromic approach simplifies and standardizes STD data collection and analysis that in turn facilitates surveillance and planning.

Disadvantages

There are some remaining concerns regarding syndromic case management. It can result in a certain proportion of female patients with vaginal discharge being over treated since the symptoms of cervical infection are not specific. This is especially true in low prevalence settings, such as in primary health centers where few STDs are seen. The syndromic approach also ignores asymptomatic cases, which are most common in women and make up over half of all STDs. As the name suggests, STD syndromic management is based on symptoms or signs and is not applied to asymptomatic populations unless they are sexual contacts to a syndromically diagnosed case. Additionally, it can result in the overuse of some drugs that may be expensive and difficult to obtain. Although by using single dose treatments, the chance of antibiotic resistance developing due to syndromic management would be rare.

While the syndromic approach has proven to be the best case management for genital ulcers and urethral discharge in men, the case management of women with vaginal discharge remains very difficult. The most common cause of vaginal discharge is vaginitis (i.e., bacterial vaginosis, candidiasis, or trichomoniasis), but the most serious cause, public health wise, is cervical infection. It is, therefore, recommended to incorporate a risk assessment for cervical infection in the flowchart. A risk assessment is a series of

behavioral and demographic markers that, if present, increase a woman's probability of having an STD, independent of her symptoms or signs. This approach has been successfully evaluated in various settings.

Although contacting sexual partners of index STD cases for treatment should be an essential component of any STD control program, doing so based on an STD syndrome is delicate. For men with a urethral discharge or men or women with a genital ulcer, it would be rare for these syndromes not to be caused by an STD, and partner referral is straight forward. However, for women with vaginal discharge, the accuracy of the model is less exact, resulting in women without a real STD notifying their sexual partners about an STD. This obviously could have severe domestic and social consequences.

Cost-Effectiveness

A recent theoretical analysis calculated that the cost per patient managed through syndromic diagnosis could be four times less than through clinical diagnosis (using the clinician's "best guess") and seven times less than etiologic diagnosis (using laboratory tests). Considering direct costs only, the cost per patient cured by syndromic management was estimated to be two to three times less than clinical diagnosis and three to four times less than etiologic diagnosis.¹⁵

The cost-effectiveness of a flowchart can be calculated in many different ways, but only the cost per patient will be discussed here. A relative estimate of these costs can be made without sophisticated calculation.

The cost per patient C is the cost incurred by the health structure in applying a flowchart to one patient. It is the sum of all the costs of diagnosis and treatment divided by the total number of patients for whom the flowchart is used.

Or:

$$C = (P_d \times \text{Diagnosis}) + (P_t \times \text{Treatment})$$

Wherein P is a proportion, P_d is the proportion of patients who will undergo diagnosis (examinations, tests) and P_t is the proportion of patients who will be treated.

The following is a typical example of how to compare the cost-effectiveness of two different flowcharts. This same method can be used to compare a flow chart with an etiological approach to STD management.

For example, consider 200 men attending a health center seeking treatment for urethral discharge. Upon clinical examination, 180 of these men had urethral discharge. Of the 180 men with urethral discharge, 140 had a positive Gram stain.

According to flowchart A (not shown), treatment for gonorrhea and chlamydial infection is given to all patients with clinically confirmed urethral discharge. According to flowchart B (not shown), a Gram stain is performed. If intracellular gram-negative diplococci (IGND) are seen on the Gram stain, treatment will be given for both infections. If no IGND are seen, the patient will be treated only for chlamydial infection. The question is which of the two flowcharts is the cheapest.

The prices used in this exercise were: U.S. \$0.10 for a physical examination (gloves, disinfectant), U.S. \$0.30 for a Gram stain, U.S. \$0.50 for Chlamydia infection treatment (doxycycline, seven days) and U.S. \$2.50 for a treatment for gonorrhea (norfloxacin, one dose).

The cost per patient applying flowchart A would be:

$$C = (200/200 \times \text{U.S. } \$0.10) + (180/200 \times \text{U.S. } \$3.00) = \text{U.S. } \$2.80$$

The cost per patient applying flowchart B would be:

$$C = (200/200 \times \text{U.S. } \$0.10) + (180/200 \times \text{U.S. } \$0.30) + (140/200 \times \text{U.S. } \$3.00) + (40/200 \times \text{U.S. } \$0.50) = \text{U.S. } \$2.57$$

Long-term costs will be determined in part by the cost of complications and sequelae, such as urethral stricture, chronic pain, extra-uterine pregnancies and infertility. These complications can be minimized by prompt and effective treatment. If a flowchart has a low sensitivity, missed or incorrectly treated infections will result. Treatment failure is also associated with the resistance pattern of the antibiotic used. Thus, the higher the sensitivity of the flowchart and the more effective the treatment, the lower the long-term costs will be. A balance must be reached between immediate costs, as reflected in the example above, and long-term costs.

Long-term costs also depend on days lost from work by STD patients and the number of additional people infected by someone with an STD, including secondary HIV infections. These long-term costs are very difficult to estimate.

DESIGN OF STD FLOWCHARTS

A team of public health specialists should design diagnostic and therapeutic flowcharts for use at the national level. Key people to involve in the design are the coordinators of national programs, including STD/AIDS control, primary health care, essential drug, family planning, and maternal and child health. In some situations, it is advisable to ask specialists, such as gynecologists, microbiologists, genito-urinary specialists and pharmacists, to participate. The involvement of these specialties can help to ensure their cooperation and increase the acceptance of the flowcharts.

In order to ensure that as many patients as possible receive correct diagnoses, background information on local etiologies of STD syndromes, including mixed etiologies, is essential in designing an STD management flowchart. Data on validity and cost-effectiveness can be obtained from the literature or from special studies. Decisions on the most cost-effective treatments must be based on local or regional antimicrobial susceptibility patterns, results of treatment trials, toxicity data and the cost of the drugs.

To ensure efficient management of STDs, flowcharts should be adapted to the level of development of the health services. Feasibility is determined by the presence of laboratory facilities; the infrastructure available for physical examination (availability of an examination room with privacy, examination table, adequate specula, gloves and light source, and facilities to disinfect specula regularly); the level of training of personnel (ability to perform a speculum examination); access to a higher-level health care facility for referrals; the drugs available in health care facilities; and the staff time available per patient.

Local and cultural perceptions about STDs and health-seeking behavior will, to a large extent, determine the usefulness of certain flowcharts. For example, when designing a flowchart, it is important to consider whether a genital examination by a health care worker of the opposite sex is culturally acceptable.

Common Flowcharts

Described below are examples of syndromic case management protocols developed by a variety of countries in Latin America and the Caribbean.¹⁶ The original WHO flowcharts were developed for six syndromes: urethral discharge, vaginal discharge, pelvic inflammatory disease, genital ulcer disease, swollen scrotum, and neonatal conjunctivitis. The first four are discussed below.

Urethral Discharge Syndrome in Men

Gonorrhea is the main cause of urethritis among clinic attendees in most developing countries. In recent years, however, as diagnostic techniques for chlamydia have become more sensitive, the role of chlamydial and mixed infections in causing urethritis in developing countries is also becoming better defined. Some clinicians rely on the characteristics of urethral discharge to differentiate between gonococcal and non-gonococcal urethritis (NGU). Gonococcal urethritis tends to be more purulent and NGU more mucoid. However, these clinical signs are not sufficiently discriminatory to predict the etiology or cause of urethral discharge in a given patient.¹⁷ In addition, they can be confounded by prior, ineffective treatments patients may have taken before coming to the clinic.

Two examples of flowcharts for urethral discharge are shown in Figures 2 and 3. The first example (Figure 2) is a simple syndromic management, treating every man with a complaint of urethral discharge for gonorrhea and NGU. A sequential treatment (first, treatment for gonorrhea and if this fails, treatment for NGU) has been the policy in the past in some countries in order to limit unnecessary treatments. However, because of a large proportion of missed chlamydial infections, and because many patients fail to come back, this approach can no longer be recommended.

Figure 2
Management of Urethral Discharge

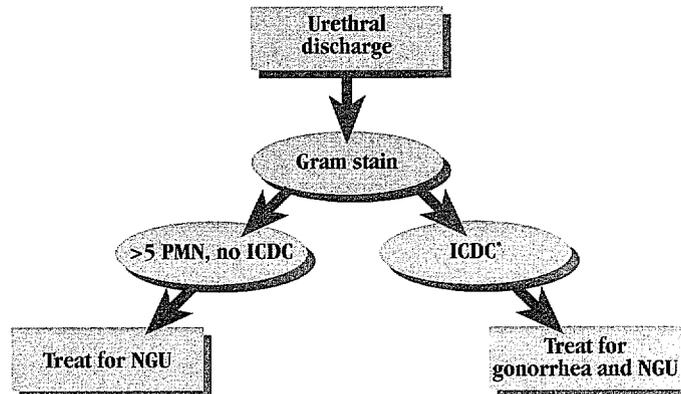
H O N D U R A S



In the second flowchart (Figure 3), Gram stain is added to a syndromic approach. Depending on the result of the Gram stain, a syndromic treatment or a treatment for NGU will be given. This approach offers the advantage of reducing unnecessary treatments (including expensive gonorrhea drugs) for the patient and his partner by increasing the specificity of the flowchart.

Figure 3
Management of Urethral Discharge

J A M A I C A



*Intracellular diplococci

A flowchart including Gram stain can only be considered when laboratory facilities are available. Results should be given within a reasonable time so patients do not have to return to the health facility for treatment the next day. This approach reduces the risk of serious complications, acute morbidity associated with either gonorrhea or chlamydia, and further transmission of the causative organism.

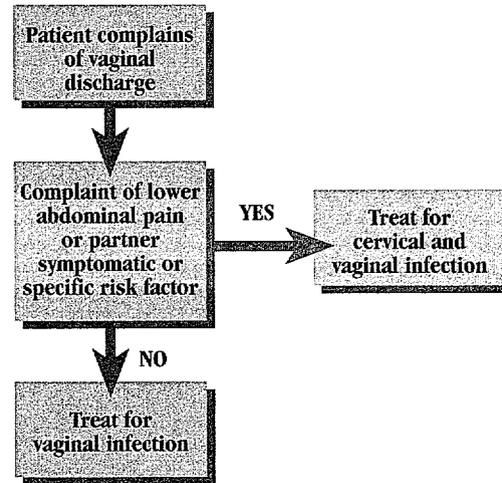
Vaginal Discharge Syndrome in Women

The symptoms of cervicitis and vaginitis overlap. Abnormal (in amount, color or odor) vaginal discharge is the symptom most commonly presented, but it is more predictive for vaginitis than for cervicitis.^{18,19} The sensitivity of the symptom vaginal discharge for cervicitis varies from 25 percent (prostitutes in Zaire) to 48 percent (STD patients in USA). Cervical mucopus and induced endocervical bleeding have a high specificity (83 to 99 percent) but a low sensitivity (1 to 43 percent) as clinical signs for cervicitis. Examples of flowcharts for vaginal discharge are shown in Figures 4 and 5.

Figure 4 is a flowchart for situations in which a speculum examination is not possible. The most probable cause of a woman complaining of vaginal discharge is vaginitis. Cervicitis is a less frequent cause of consultation for vaginal discharge, but the complications of untreated cervicitis are much more serious.

Figure 4
Example of a Flowchart for the
Management of Vaginal Discharge

H A I T I
(without speculum)

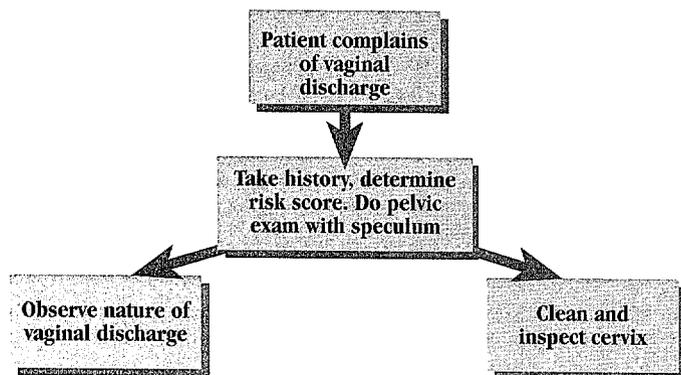


The accuracy and cost-effectiveness of syndromic diagnosis of vaginitis can be improved significantly in some settings by adding a risk assessment component to the case management protocols (for instance, determining whether an individual has had a new sexual partner or more than one sexual partner in the past three months). Using this approach, a woman with vaginal discharge and positive risk assessment for STDs would be treated for gonorrhea and chlamydia cervicitis as well as for vaginitis; a woman with no risk factors for STDs would be treated only for vaginitis, which requires a much less expensive treatment regimen. A recent analysis of data from pregnant women and sex workers in Zaire suggested that a simple case management protocol based on reported vaginal discharge and a risk assessment could be a useful tool for symptomatic women at high and low risk for STDs.²⁰

In situations where a speculum examination is possible, the clinician can try to differentiate between various etiologies of vaginal discharge. The clinical sign mucopus, however, is not sensitive enough to be the only indication for cervicitis treatment. Figure 5 is an example of a flowchart utilizing a speculum exam and a risk assessment.

Figure 5
Example of a Flowchart for the
Management of Vaginal Discharge

J A M A I C A
 (with speculum)



Runny or malodorous: Treat for trichomoniasis, bacterial vaginosis
 White curdlike: Treat for candidiasis

Presence of mucopus: Treat for gonorrhea & chlamydial infection & trichomoniasis

No mucopus, risk score ≥ 2 : Treat for gonorrhea & chlamydial infection & trichomoniasis

No mucopus, risk score < 2 : No treatment

Risk Score

Partner has urethral discharge	2
< 21 years	1
New partner in last 3 months	1
> 1 partner in last 3 months	1
Not living with steady partner	1

Total

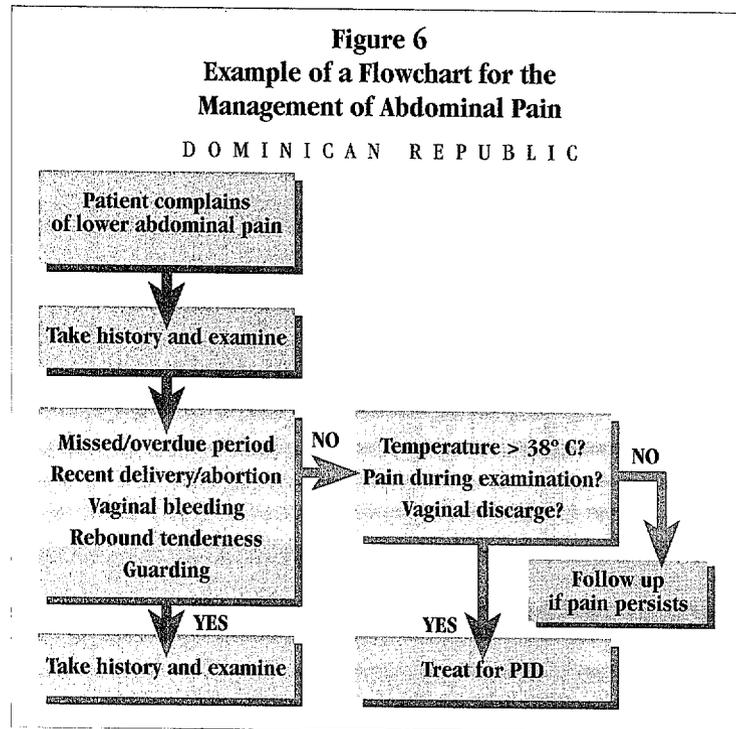
An alternative for differentiating etiologies for vaginitis can be offered by simple laboratory tests, if the infrastructure is available. Direct examination of a vaginal wet mount is useful for detecting trichomonads and yeast forms. Determination of the vaginal pH and amine odor with 10 percent potassium hydroxide solution can be helpful in the diagnosis of bacterial vaginosis. However, no simple laboratory test has been developed so far for detecting cervicitis. Adding Gram stain for the detection of intracellular gram-negative diplococci or leukocytes in the endocervix does not offer any advantage, as the sensitivity will drop dramatically. The leukocyte esterase dipstick, which has a good sensitivity for detecting male urethritis, had a sensitivity of only 47 percent for the detection of cervicitis.¹⁵

Pelvic Inflammatory Disease:

The Management of Lower Abdominal Pain

Pelvic inflammatory disease (PID) is a common complication of untreated gonococcal and/or chlamydial cervicitis and results in tubal scarring and occlusion. This can lead to ectopic pregnancy — a serious, possibly life-threatening complication. Most infertility problems in the developing world are attributed to prior upper genital tract infections.²¹

An example of a clinical flowchart for detecting PID is shown in Figure 6. Because of the serious complications of PID, the flowchart should start with a very sensitive symptom. Lower abdominal pain is more sensitive for PID than fever. It is important that surgical and obstetrical emergencies, such as peritonitis and extra-uterine pregnancy, are immediately referred.



Genital Ulcer Disease

Many studies have tried to describe a "typical" clinical picture for the different etiological diagnoses of genital ulcer disease (GUD) but have failed. Descriptions, such as regular shape, smooth base, undermined edge, friability, tenderness and purulence, are not sufficiently discriminatory (even for experienced clinicians) to make an etiological diagnosis in most cases. In a study in South Africa of 210 patients with genital ulcers, clinical diagnosis was compared with a gold standard laboratory test. Clinical diagnosis had a positive predictive value of 89 percent for chancroid, 47 percent for syphilis, and 19 percent for genital herpes.¹⁵ Dual infections were common, making an etiological diagnosis even more difficult. Without sophisticated laboratory tests, an etiological diagnosis of GUD is impossible.

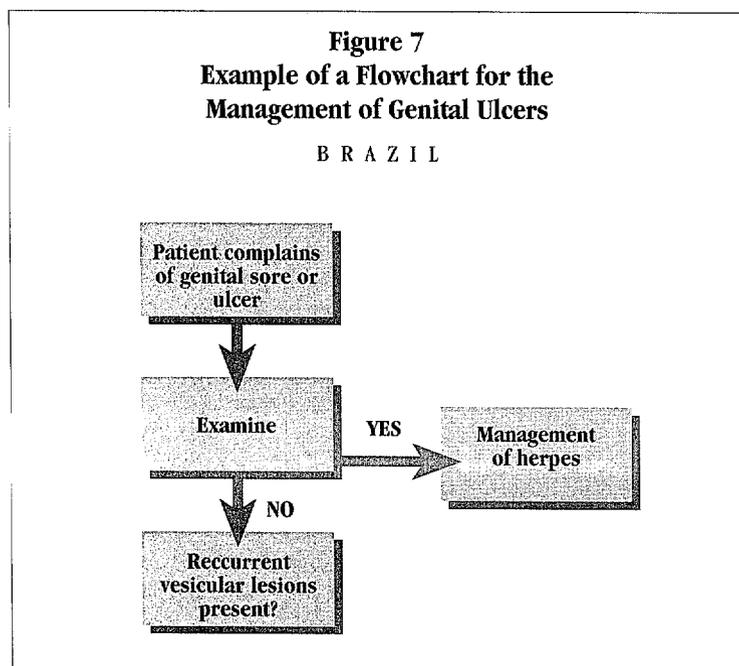
The relative frequencies of the different causes of GUD vary between geographical areas but can also vary in time. For example, two studies on the etiologies of GUD, in Rwanda in 1986 and 1992, found there was a shift in the relative frequencies of different etiologies. As the prevalence of HIV infection increased, herpes became more important as an etiology of GUD.²²

In many developing countries, the etiologies of GUD most frequently found are syphilis and chancroid. Both are treated with simple antibiotics (erythromycin and benzathine penicillin, respectively).

An antiviral therapy for herpes is not available in most primary health care settings in developing worlds. It is important to treat for chancroid and syphilis, even if some of the genital ulcers treated are actually caused by herpes.

In Rwanda, three different approaches were compared for the management of syphilis and/or chancroid. The syndromic approach adopted by most developing countries, illustrated in Figure 7, resulted in 99 percent of the patients with syphilis and/or chancroid correctly managed. For the approach based on the result of a Rapid Plasma Reagin (RPR) test (if RPR positive, treat for syphilis; if RPR negative, treat for chancroid) and for a

clinical etiological approach, the proportions of correctly managed patients were 82 percent and 38 percent, respectively.



Including an RPR test in a hierarchic model is not an improvement in genital ulcer case management because many chancroid cases are missed. However, based on the Rwanda data, including an RPR test in a syndromic approach (treating all RPR positive patients for *both* syphilis and chancroid, and all RPR negative patients for chancroid alone), leads to a reduction in unnecessary syphilis treatment of patients and their partners.

Validity Testing of a Flowchart: Sensitivity and Specificity

The sensitivity of a flowchart is the proportion of infections detected and treated when applying the flowchart to patient management. A high sensitivity implies a large proportion of the infections will be detected and treated, so the cure rate will be higher, and only a small proportion of infections will be missed. Missed cases place the infected person at a continued risk of more serious complications and result in further disease dissemination.

The specificity of a flowchart is the proportion of patients without infection that are not treated. A high specificity implies that patients without infection are not being told they have an infection and are not being treated. A low specificity means too many patients without infection are being treated. This has social, biological and financial implications. Socially, people without STDs are being told to have their partners treated; biologically, over use of antibiotics may lead to resistance strains; and financially expensive drugs are being wasted.

Work is ongoing on the identification, development, and use of simple tests that could improve the sensitivity and specificity of syndromic diagnosis, including simple, rapid tests to identify oxidase-producing organisms (e.g. gonococci) in urethral discharge and tests to detect leukocytes in cervical and urethral specimens which would be suggestive of chlamydial and or gonococcal infections.

The study population for validity testing has to be as representative as possible of the population in which a flowchart will be used. As long as enough STD patients are consulted to reach the necessary sample size within a reasonable time and a reference laboratory is available for the gold standard tests, a primary health care setting is suitable. In general, sophisticated laboratory tests are needed for gold standard diagnosis. If some patients consulting at the primary health care level have already taken drugs, it is important not to exclude them from the validity study.

When testing the validity of flowcharts, it is preferable to have two examination rooms. In one room, a health care worker can follow the directives of the flowchart and make a therapeutic decision. Then the patient can be asked to enter a second room, where a more systematic examination can be done and where specimens will be taken for the gold standard laboratory tests. Since a speculum examination is sometimes not included in STD flowcharts, using such a setting will ensure that the therapeutic decision is not based on the findings of the speculum examination.

The likely outcomes of diagnoses made using a flowchart can be simulated retrospectively using data from history taking, physical examination and laboratory tests. This desk exercise can be very useful for evaluating modifications to flowcharts without repeating studies. For example, it could be used to assess what would happen to the specificity of a flowchart if the gram stain examination were omitted.

OTHER COMPONENTS OF COMPREHENSIVE STD CASE MANAGEMENT

The syndromic approach to STD case management includes a comprehensive public health approach to patient care. In addition to diagnosis and treatment, comprehensive case management includes partner treatment, health education, and condom education, promotion and distribution. To remind health care workers of these aspects of case management, short messages could be added to the flowchart as shown in Figure 8.

Figure 8

- Counsel regarding sexual risk reduction
- Review compliance with treatment regimen
- Promote condom use
- Encourage partner notification and partner treatment.

Partner Treatment

Partners of patients with an STD are likely to be infected themselves and should be offered treatment. Partner notification and referral can be one of the most important ways to detect and treat asymptomatic patients. Confidentiality, a non-judgmental attitude and the absence of coercion are important for the success of partner notification. The WHO recommends epidemiological treatment (treatment based solely on the diagnosis of the index patient without any laboratory investigation) be given to all partners.²³

An important implication of the low positive predictive value of some flowcharts is the over treatment of partners, resulting in unnecessary drugs given and the psychological cost of inappropriate labeling.

The syndromic approach to STD case management includes a comprehensive public health approach to patient care.

Health Education

Patients seeking STD treatment may be particularly receptive to educational messages, recognizing the personal vulnerability evidenced by their symptoms. With HIV in the picture, people are more likely to welcome advice.

Health education focuses on reducing risky behavior, such as through the use of condoms or other mechanical barriers, and stresses the importance of part-

ner treatment. As time is usually very limited during a consultation, there is a real danger this opportunity for face-to-face education will be missed.

Condom Distribution

The global effectiveness of condoms for preventing STDs depends on the efficacy of the method and user acceptability. Condom demonstration by the health care provider during the contact with the STD patient is a good way to recruit new users.

Adding Strategies

The syndromic approach to STD management is not the complete solution to STD control. It works well for urethral discharge in men, genital ulcer disease in both men and women, and pelvic inflammatory disease, but is less than optimal for managing vaginal discharge, even with the addition of a risk assessment. Moreover, syndromic management was never designed as a tool for identifying infection in asymptomatic people. Greater support is required for additional approaches, including partner referral and treatment, services targeting high-risk populations, and comprehensive syphilis screening of antenatal women. Rapid, inexpensive, simple diagnostic tests for gonococcal and chlamydial infection are urgently needed to improve the management of STDs in women.

Syphilis Screening and Treatment

Although treatment for syphilis is included in the syndromic algorithms for genital ulcers, many cases of syphilis could be missed by using this criteria alone because a person could be infected with syphilis without having a genital ulcer. Fortunately, there is a simple and cost-effective laboratory test that can be used to screen patients for syphilis and that can provide results the same day as the patient visit. This test is best utilized among patient populations that have a high rate of infection, such as at STD clinics, STD patients in primary care settings, or in ante-natal clinics where untreated syphilis can have catastrophic effect on birth outcomes. As an example, Jamaica decentralized and implemented just such a screening program in an attempt to reduce their high syphilis rates. Laboratory aides and assistants with little laboratory experience learned how to perform syphilis blood tests at the clinic sites. And although some people were skeptical that this level of health worker could perform the test accurately, a quality control assessment confirmed 96 percent of the results of the syphilis tests performed by the lab aides. In Jamaica, syphilis screening is now available at 76 antenatal clinics and 17 STD clinics. As a result, 68 percent of those who test positive for syphilis are treated the same day, and 85 percent received treatment in less than one week. This contributed to the 50 percent decline in infectious syphilis found over a 2 year period.²⁴

Training

Most traditional health care training is based on an etiologic model. Thus, the syndromic approach to STD management is a new concept to most health care workers. Therefore, the re-training of health care clinicians, whether they are physicians, nurse practitioners or public health nurses, is an important component of initiating this approach into a public health system.

Clinical training of STD personnel can be difficult and must reflect reality and be problem-oriented. Flowcharts are useful training tools for this purpose because they are based on the presenting symptoms and show the path of diagnostic reasoning to reach a proper diagnosis and to prescribe the best treatment. The skills of history taking and physical examination must not be

neglected in this approach. Health care workers must still learn to ask the most relevant questions, including questions on sexual behavior, and to look for the most important physical signs. Active participation of students in the logical, step-by-step construction of flowcharts is educationally beneficial and facilitates their acceptance and use.

The following are important components of training in the syndromic approach to STD management:

- National STD guidelines and flowcharts must be established before training and should be the basis of the training module.
- Local data and local examples are important to convince participants of the utility of the training.
- Careful and proper training of the trainers is essential for a high quality transfer of ideas.
- All training must be followed up with frequent supervisory visits. It has been proven in numerous instances that merely providing training without follow-up reinforcement will produce poor results.

INTRODUCTION OF STD SYNDROMIC MANAGEMENT IN LAC

Encouraging the adoption of syndromic management required considerable effort at the policy level as well as research to validate and adapt WHO algorithms in different settings. AIDSCAP worked with local officials and providers to build consensus on the need for a standardized approach to STD management and to develop national guidelines for syndromic management of STDs. The success of this collaborative process laid the foundation for subsequent efforts to strengthen STD services.

AIDSCAP worked to improve STD care at points of first encounter through technical assistance and training in syndromic management, communication, and STD program management for providers, managers and pharmacists. Despite initial resistance to the syndromic approach, follow-up assessments of the STD care provided by trainees in different countries found marked increases in the percentages of clients receiving effective treatment.

The following case studies give good examples of the process several different Latin American and Caribbean countries experienced with the introduction of STD syndromic management into their countries.

Haiti

In February 1995, more than 70 Haitian health care providers and officials from medical and community organizations meeting at a seminar in Port-au-Prince agreed on the need for national STD guidelines outlining a new approach to diagnosis and treatment.

Just three years earlier, many of the same medical decision makers had opposed changes in the way STD cases were managed. In the meantime, however, they had learned that lack of information about STDs often resulted in ineffective treatment throughout Haiti.

Having results from local studies that supported recommendations for new STD guidelines was the key to this breakthrough, according to Dr. Eddy Génécé, then AIDSCAP Resident Advisor in Haiti. "The resistance was so strong at first," he said. "I think it was overcome with scientific proof."

A series of AIDSCAP-supported studies provided the information needed to change the providers' minds. The first, an assessment of STD case management at five of the primary health care centers run by the NGO, Centre pour le Développement et la Santé (CDS), in Cité Soleil revealed that more than 90 percent of the clinicians were treating urethral discharge with an ineffective drug. Another cause of urethral and vaginal discharge — chlamydial infection — was essentially ignored. Sexual partners of STD patients were seldom referred for treatment, and pregnant women were rarely screened for syphilis.

As a result of these findings, CDS adopted the syndromic approach to STD management in all of its clinics. Staff received training and guidelines for providing STD care at the primary health care level. Since clinicians might not have the time to focus on prevention, nurse-counselors were trained to counsel patients and their partners on safer sexual behavior and condom use.

CDS also ensured systematic prenatal screening at its antenatal clinics. The Pan America Health Organization donated a one-year supply of drugs for treating common STDs; CDS was able to replenish its stocks by charging patients a modest sum for drugs.

Other organizations and providers, however, still resisted change. Many providers, believing chlamydial infection was rare among Haitians, did not think it was appropriate to treat both gonococcal and chlamydial infection in patients seeking treatment for urethritis or cervicitis, as the WHO recommends. Others were simply opposed to using the syndromic approach, even though most acknowledged that laboratory tests were not always available and that laboratory results were often unreliable.

In 1993, a survey of STDs among 1,000 patients at two CDS antenatal clinics revealed that chlamydial infection was much more common than gonorrhea. This information paved the way for acceptance of the WHO syndromic approach. The next year, a coalition of 13 NGOs working on HIV/AIDS prevention in Haiti's Central Plateau began a program similar to CDS's.

Evaluations of the two programs showed they had improved STD case management significantly. The percentage of CDS clinicians treating urethral discharge properly had increased from less than 10 percent to 69 percent. In the newer NGO coalition program, 56 percent of the clinicians who were evaluated reported giving effective treatments for urethral discharge. Clinicians and nurse-counselors in both programs were promoting condom use.

Despite this progress, in 1995 there was still no standardized approach to STD diagnosis and treatment in Haiti. Therefore, AIDSCAP convened the February 1995 seminar to encourage Haitian organizations to reach consensus on STD case management. During this seminar, some clinicians learned for the first time that chlamydial infection was more prevalent than gonorrhea in Haiti and that most strains of gonorrhea were resistant to penicillin. After discussing the Cité Soleil findings and their own experiences in the field, participants agreed they should adopt a syndromic approach to managing STDs.

Representatives from local NGO and research institutions and several international organizations formed a working group to develop national guidelines for STD case management. In the fall they were joined by officials from the newly restored democratic government. The guidelines were presented and discussed at a second seminar, held in collaboration with the Ministry of Health in November 1995, for health professionals and medical decision makers. A small booklet describing the guidelines was distributed to providers in 1996.

Most national health guidelines are developed by Ministries of Health. Since Haiti's health care system collapsed during its turbulent years of military rule, development of national STD guide-

lines began with local institutions that later collaborated with the Ministry of Health — a novel bottom-to-top approach. Now the groundwork has been set, and the government and NGOs can work together to build a national STD control program.

Jamaica

The establishment of STD syndromic management in Jamaica is a somewhat unique story. Jamaica was in the enviable position of having a very strong and visionary public STD control program within the Ministry of Health, whose top management agreed with the philosophy of STD syndromic management from the inception. This combined with a group of well-managed and well-attended specialized STD clinics and primary care centers that served the needs of STD patients, and the foundation for success was set.

The Jamaican STD control program, acting as a leader for STD control issues in the Caribbean basin, independently developed STD treatment guidelines and STD management tools based on WHO algorithms. These guidelines and STD management booklets, produced with the help of the Pan American Health Organization, were distributed to appropriate public sector clinics. This was followed-up by country-wide training sessions in the use of this material.

As a strategy to develop an STD reference lab, the laboratory attached to the main STD clinic in Kingston was upgraded to a working STD reference lab in a collaboration between AIDSCAP and the Ministry of Health. This laboratory upgrade made validation studies of the algorithms for vaginal discharge and genital ulcers possible, and allowed these algorithms to be revised and made country specific. In combination with an ongoing program to monitor the susceptibility of gonorrhea to antibiotics as recommended in the treatment guidelines, a system to guarantee the accuracy of the syndromic algorithms and management guidelines was successfully accomplished.

In order to ensure clinical staff were using the syndromic algorithms to guide them in STD management, programs of training

new staff and providing continuing education to seasoned staff were implemented. Finally, a periodic audit of clinical care quality was adopted for quality control. In the most recent audit, 100 percent of 125 clinicians used the correct treatment for gonorrhea and syphilis based on syndromic management.

A key factor in this success was thought to be that most of the clinicians in these clinics are nurse practitioners and are more receptive to the syndromic approach, compared to a system dominated by physicians.

In the private sector, however, there were several issues surrounding the introduction and adoption of STD syndromic management. The public sector, unlike managing its own clinics, had no management control over the manner in which private STD patients were seen. Thus, any change towards a more public health approach to management would be decided by that individual private practitioner.

In Jamaica, the large, loosely organized and independent private sector provides over half the care for all STDs. Most private practitioners have some laboratory support available, although most of this support is usually off site and causes delays in treatment. This fact and its implications were discussed in a series of STD seminars attended by over half of all private sector practitioners on the island. This seminar series was organized by the Medical Association of Jamaica, the oldest professional organization in the country with a membership of over 600 and access to most of the private sector physicians in Jamaica. Instead of the non-laboratory syndromic approach, a modified syndromic management of STDs was introduced that included available laboratory confirmation and immediate treatment for symptomatic patients.

Post-seminar surveillance indicated the approach was understood by the private practitioners, but a final evaluation revealed it was not adopted on a long-term basis. It is believed repeated exposure and training by the Medical Association of Jamaica will over time modify practice behavior in the private sector from a purely clinical to a modified syndromic approach to STD management.

Brazil

The project for the control and prevention of STDs in select areas of Brazil encompassed the years 1993-1997. Brazil has one of the most organized public health systems in the Americas. In Santos, for example, a network of 22 polyclinics services its half million population. However, only 1 polyclinic was providing STD services and care at the beginning of the project.

An assessment of STD case management revealed that the syndromic approach for the diagnosis and treatment of STDs was rarely used by health care workers. AIDSCAP and local counterparts initiated several projects to integrate STD syndromic management into the health care system in Rio de Janeiro, São Paulo and Santos.

At the onset of program implementation, supervisory staff were trained and given technical assistance in the fundamentals of the syndromic approach, methods and logistics of training sessions, and evaluation techniques.

The MOH had previously approved and printed national guidelines for the syndromic management of STDs, based on WHO guidelines and algorithms, and these were distributed to all polyclinics and health care workers. In addition, they received a pocket STD booklet with flowcharts and a list of appropriate medications and doses for STD syndromic management, a poster with the STD flowchart, and numerous copies of reference materials.

Concurrently, plans were made to conduct a study to formally validate all the national STD algorithms with a multi-center study that was conducted mid-project. This was felt to be an essential component of assuring efficacy for the future use of syndromic management.

During the life of the project, a total of 12 training courses on syndromic management were given to over 90 health centers and were attended by more than 1,000 health care workers. Additionally, in response to studies indicating pharmacists were

selling drugs that were either ineffective or inadequate for the treatment of STDs, 31 private and public sector pharmacists were trained in STD syndrome recognition and management.

Several health care practitioners (HCPs) were resistant to accept the syndromic approach as a valid method to diagnose and treat STDs. Most HCPs were trained during medical school and residency to diagnose STDs based on the etiologic approach and considered the syndromic approach to be of a lesser quality of medicine. The HCPs also lacked confidence in the guidelines provided on the syndromic approach. The increase in supervisory visits to the HCPs and polyclinics to further discuss and provide instructions on implementing the syndromic approach proved useful in lessening this resistance. These visits also proved useful in the sensitization of gynecologists to STDs, since most did not consider some cases of vaginal discharge as possible STDs.

Many difficulties were faced during the implementation of this project. Most were related to the status of public health care provision, such as insufficient supplies, high turn-over of personnel, political changes and lack of infra-structure. For example, it is essential for the success of STD case management to have available drugs for the treatment of patients. However, this project depended on the Ministry of Health for STD drugs, and they arrived 10 months after the syndromic guidelines were introduced. The large time lapse between the training and the arrival of the STD drugs contributed to a general lack of motivation among the HCP and the coordinators, as they had difficulty believing the project would be carried out.

At the conclusion of implementing the syndromic approach, with its training and supervision, an evaluation to assess the level of the quality of STD care was conducted. The results indicated the syndromic approach was utilized in 50 percent of the male cases but in only 2.6 percent of the female patients. Ninety percent of the male patients reported receiving preventive messages regarding partner treatment, while just 34 percent of the female patients reported receiving these messages. Thus, while the use of the syndromic approach to diagnose and treat STDs has

increased to 50 percent for men and 2.6 percent for females, it is important to note the increase was not substantially higher due to various factors. These include the overestimation of the validity of clinical signs for an etiologic approach, the resistance of STD specialists and teachers at the university to the syndromic approach and their continued teaching of the classical etiologic approach, and the influence of pharmaceutical companies on the prescription patterns of the physicians. Based on the aforementioned, additional training and refresher training were recommended, with particular focus on STD management in women.

Honduras

Honduras began its efforts to improve STD case management with the introduction of syndromic management in 1995. Within the political framework, a close relationship was developed between AIDSCAP and the Ministry of Health through its Department for the Prevention and Control of STD/AIDS (DETSS), which allowed the project to respond to the needs of the National STD Control Program. An inter-institutional Committee was formed by the Resident Advisor of AIDSCAP/Honduras, the Chief of DETSS and a USAID representative, allowing for effective coordination among these institutions.

The strategy for syndromic management was implemented at the level of the four national regions that report the greatest number of AIDS cases in the country. This strategy was initiated with the identification of four Unidades de Manejo Integral de ETS (UMI-ETS), one in each health region. These were key existing centers for care and referral of STD cases. In order to initiate the project, AIDSCAP supported the remodeling and equipping of the facilities and training of its staff.

DETSS, with the technical assistance of AIDSCAP, prepared the *Manual Nacional de Manejo Síndrónico de ETS* (National Manual of STD Syndromic Management). This manual presents the syndromic approach with the goal of improving the quality of care and increasing access to treatment. The guidelines were developed through a participatory process. Consensus was reached amongst regional coordinators, a 10-member STD expert

committee, and medical staff working in "CESAMO" (health facilities with physicians).

Once the *Manual Nacional de Manejo Sindrómico de ETS* was distributed, the pilot phase of the training of UMIETS staff was conducted. This included the development of training manuals for three groups: one manual for clinical staff; one manual, focused on educational issues, for educators, psychologists, and social workers; and a technical manual for laboratory staff. These manuals focused on training methodology and tools, and on specific issues related to each of the three groups, with the *Manual Nacional de Manejo Sindrómico de ETS* as common reference. The training of clinical and lab staff on the integrated management of STDs based on the syndromic model reached health workers across the network of health services. As a result, 306 staff members from the MOH were trained, among them physicians, registered nurses, and health auxiliaries, and 241 medical and nursing staff members from the IHSS. This training resulted in more timely and better quality services as well as better access to them.

The management of STDs among CSWs is a top priority in Honduras because of their role as a core transmitter group. As in other Latin American countries, CSWs in Honduras must undergo regular STD control visits. One of the objectives of the project was to improve the quality of care and increase the coverage of STD syndromic management in this group in the UMIETS. However, this presented a particular problem in Honduras, as it has in other areas of the world, since no standard recommendations exist for STD management in CSWs. The reason for this is because if a standard risk assessment is used, all these women would be treated for gonorrhea and chlamydia which would, for all purposes, really be a program of universal treatment.

In order to resolve this issue, AIDSCAP, the Ministry of Health, STD specialists, and clinical staff from the four regions collaborated on developing a manual for STD syndromic management in CSWs. Presently, this manual is in the final stage of revisions.

Finally, a special investigation was undertaken to determine the degree of gonococci resistance in the project area. Among the most important results was the confirmation of the existence of the Betalactamas strain which is resistant to penicillin (60 percent), and the identification for the first time in the country of strains resistant to tetracycline (89 percent). Based on these findings, the treatment schemes were modified in the *Manual Nacional de Manejo Sindrómico de ETS*.

Dominican Republic

In the Dominican Republic, STD services were improved by upgrading clinical facilities, improving STD drug logistics, and developing a STD syndromic management manual for practitioners. AIDSCAP, in collaboration with local counterpart institutions, conducted 37 courses in which 854 clinicians were trained, including social workers, nurse supervisors, and educators. Both clinicians and non-clinicians were required to attend refresher courses six months after the initial training workshop. Pre and post tests were conducted for all participants. In addition, STD treatment manuals and laminated treatment algorithms were distributed to health educators and providers. Subsequently, algorithm validation research was conducted, and a reporting and referral system was developed based on syndromic management.

Despite great success in many areas, the AIDSCAP/Dominican Republic program did face several constraints. High staff turnover rate among various collaborating agencies hampered program implementation and slowed the development of national STD guidelines. Logistics problems continued to affect STD drug distribution. Many clinicians proved reluctant to introduce syndromic management (rather than etiologic) of STDs. STD surveillance was constrained by the continuing problem of STD self-treatment and under-reporting on the part of providers.

In the Dominican Republic, a significant lesson learned was that the institutionalization of the syndromic management approach to STD treatment requires a long-term commitment and continuous support. Institutional support is necessary to overcome clinician resistance to obtaining additional training in a country where

continuous education is not customary. It was also felt that continuous training was necessary due to the high turnover of clinic personnel.

Historically, few resources have been devoted to STD control in the Dominican Republic. NGOs and donor organizations play strong advocacy roles for the rational distribution of STD drugs, and clinicians involved in STD treatment have been valuable advocates for appropriate drug management. However, like every country, ensuring that STD drugs are available demands political commitment from the top and a strong logistical system that is part of the overall health care system, not parallel to it.

In the development of their flowcharts, the Dominican Republic effectively designed changes in the WHO templates for their country-specific needs. Because of the high prevalence of STDs in the country, it was thought that the syndromic algorithms should emphasize sensitivity over specificity. This was done by emphasizing demographic risk factors, such as young age and single marital status. Other changes included an evaluation of men with dysuria but no discharge, and treating suspected herpes for both syphilis and chancroid.

LESSONS LEARNED

Building Consensus and Communication

- **Building the foundation for improving care at points of first encounter requires intensive effort at the policy and program management levels.**

Engaging the commitment and resources of public health officials and STD managers and providers demands significant technical assistance and consensus building. AIDSCAP's experience in Haiti, where such efforts led to national consensus on STD guidelines and improvements in service delivery, shows that the time and resources necessary to orient and train policymakers, managers and providers are well worth the investment. An initial assessment is necessary to determine a baseline level of care that is provided. This will be the data used to determine improvement.

- **Biologic studies of STD prevalence and antibiotic susceptibility in a country are essential to building consensus on national STD treatment guidelines.**

The local data that these studies generate can help convince STD program managers and health care providers to adopt the syndromic approach to STD management. AIDSCAP found that once managers and providers understood the magnitude of the STD problem in their country and the ineffectiveness of many of the current treatment practices, they were more likely to appreciate the benefits of a simple, standardized approach that increases access to effective treatment.

- **Training alone is not enough to implement syndromic management into an existing health care system.**

Supervision, updates, refresher courses and a commitment to change management practices are essential to integrate syndromic management into existing health care systems.

Syndromic guidelines can be distributed and implemented in a standardized way on a large — even national— scale through clinical flowcharts. Moreover, flowcharts facilitate and improve training of health care workers in STD management.

Development and Implementation of STD Flowcharts

- **A single, universally applicable model for STD flowcharts does not exist.**

Local data on etiology and antimicrobial susceptibility are needed to design an effective flowchart. The validity and cost-effectiveness of different approaches can in many situations be estimated from the literature or assessed in special studies.

- **Flowcharts should be validated in a field audit to assure efficacy.**

Before the introduction of new flowcharts, feasibility and acceptability should be assessed in the given health infrastructure. This will validate acceptable levels of sensitivity and specificity.

- **A flowchart will always be a compromise between diagnostic accuracy and technical and financial realities.**

Improving Access to STD Care

- **STD Syndromic Management is perfectly adapted to primary health care settings.**

In many developing countries, a syndromic approach for the management of patients with STDs is currently being used, resulting in well accepted, quality STD care in primary health care settings. Because it is simple, rapid and does not require sophisticated laboratory tests, the syndromic approach makes

it possible for almost every health care worker to offer prompt diagnosis and treatment to patients with STD symptoms.

- **Research findings from several countries confirm that many people seek STD treatment outside the formal medical system.**

Although high levels of self-treatment and limited resources for STD control in many countries compel policymakers, medical professionals and donors to consider innovative approaches to improving access to effective treatment, opposition to providing STD management outside the clinic setting is strong. Training pharmacists and other drugstore personnel in the syndromic approach can improve the management of STDs in many patients who choose to self medicate.

- **The achievements of an STD control program depend to a large extent on the successful management of STDs at a patient's point of first encounter with the health care system.**

Genital ulcers in men and women and urethritis in men can be adequately managed using a syndromic approach based on symptoms and clinical signs only. For lower genital tract syndrome in women, the concept of adding a risk score to the syndromic management holds promise as a more sensitive way to detect cervicitis. Ongoing validation and acceptability studies will further demonstrate the advantages of this approach compared with the classical clinical (etiologic) approach.

- **Drug availability is the most essential component of the clinical management of STDs.**

Without a consistent drug supply, patients cannot be treated appropriately, and lapses in the supply cause the community to lose confidence in the system which leads to poor care seeking behavior.

Detecting Asymptomatic STDs

■ **Current risk assessment strategies are not a valid tool for identifying STDs in women without symptoms.**

The main obstacle to managing STDs other than syphilis in asymptomatic women is the absence of valid, feasible and affordable case-finding and screening strategies, particularly for gonococcal and chlamydial infection. Results of a study conducted by AIDSCAP in Jamaica and by others attempting to define a risk profile for infected asymptomatic women have been disappointing. This study found that risk assessment scores derived from current flow charts are neither sensitive nor specific enough for widespread use. However, imperfect approaches that include risk assessment may be a better option than doing nothing at all, particularly in areas where STD prevalence is high. Moreover, risk assessment may continue to play a role in the management of STDs in asymptomatic women because risk scores could be used to determine who should be tested for a sexually transmitted infection when an appropriate test becomes available.

■ **Partner referral is possible in a variety of settings.**

Reaching partners of STD patients with treatment — a long neglected component of STD management in most countries — has great potential for improving STD control because it results in treatment of asymptomatic partners, particularly women. AIDSCAP's improved partner management systems in antenatal clinics in Haiti attained referral rates of 30 percent.

This pilot study found that almost half of the women attending two Haitian antenatal clinics had one or more STDs. Ninety percent of the women agreed to inform their partners, and 30 percent of the 331 men named by 384 women sought treatment. Health workers found that men were more willing to come for treatment when the problem was framed in the context of preserving fertility or ensuring healthy offspring. When

men who had come to the clinic were asked why it was important to them to receive treatment, one of the most common responses was "to protect the child."

- **Health workers without any laboratory experience can be trained to perform accurate syphilis blood tests, making it possible to expand syphilis screening of pregnant women.**

An effective, affordable treatment for syphilis is available, yet hundreds of thousands of undetected and untreated maternal syphilis cases lead to fetal loss, infant death or congenital abnormalities every year. Too often, logistical and managerial obstacles impede use of the rapid, simple, inexpensive syphilis diagnostic test for routine screening in antenatal clinics. In Jamaica, AIDSCAP worked with the Ministry of Health to remove some of the obstacles in a successful effort to decentralize syphilis testing.

RECOMMENDATIONS

AIDSCAP proposes the following steps as a comprehensive approach to syndromic STD management to establish improved, client-centered STD service delivery:

- Gather existing data or conduct studies to describe local STD prevalence, antimicrobial susceptibility patterns, and STD beliefs and practices.
- Convene local health personnel to review epidemiological data and reach consensus on national STD syndromic treatment guidelines.
- Design, conduct and evaluate training of local providers in syndromic management.
- Provide supportive supervision for trainees and evaluate service provision.
- Train regional, national and local managers in program management and evaluate the results of the training.
- Work to ensure required drugs are available.
- Given the high level of self-treatment and lack of access to effective STD treatment found in many countries, STD and HIV/AIDS control programs should supplement efforts to improve traditional STD services with alternatives, such as training of pharmacists in syndromic management and selling prepackaged STD therapy in pharmacies and health facilities.
- Greater emphasis on behavior change communication is also needed in both clinic-based STD services and community outreach to encourage early treatment seeking.
- STD programs should institute partner referral in order to detect and treat asymptomatic STDs, particularly in women.

- All pregnant women attending antenatal clinics should be screened for syphilis and treated.

- Health care workers without any laboratory experience can be trained to use the rapid, inexpensive diagnostic test for syphilis with high levels of accuracy.

REFERENCES

1. Development Associates, Inc. Management review of the AIDSCAP project. Washington: Development Associates, 1995.
2. Family Health International/AIDSCAP. Making prevention work: Global lessons learned from the AIDSCAP project 1991-1997. Arlington, VA: Family Health International/AIDSCAP, 1997.
3. Holography. Colliers Encyclopedia. 1996 ed.
4. Holography. Encyclopedia Americana. 1997 ed.
5. Babbie, Earl. The Practice of Social Research. 6th ed. Belmont, CA: Wadsworth Publishing Co., 1992.
6. Joint United Nations Programme on HIV/AIDS. The HIV/AIDS situation in mid 1996: Global and regional highlights. UNAIDS Fact Sheet. July 1, 1996.
7. Royce RA, Sena A, Cates W, Cohen MS. Sexual transmission of HIV. NEJM 336: 1072-1078; April 10, 1997.
8. Wasserheit JN. Epidemiological Synergy: Interrelationships between human immunodeficiency virus infection and other sexually transmitted diseases. Sx Transm Dis 19; 61-77; 1992.
9. Grosskurth H, Mosha F, Todd J et al. Impact of improved treatment of sexually transmitted diseases on HIV infection in rural Tanzania: randomized controlled trial. Lancet 1995; 346:530-6.
10. STD Diagnostic Initiative, Program for Appropriate Technology in Health. Syndromic Diagnosis of STDs. Global Access to STD Diagnostics. Vol 2, Number 2, Sept 1993.
11. Cohen M, Hoffman I, Royce R et al. Treatment of urethritis reduces the concentration of HIV-1 in semen: implications for prevention of transmission of HIV-1. The Lancet 349 (9069): 1868, (1997).
12. Ghys PD, Diallo MO, Ettiegne-Traore V, et al. Genital ulcers associated with Human Immunodeficiency Virus- related immunosuppression in female sex workers in Abidjan, Ivory Coast. The Journal of infectious Diseases. 1995;172:1371-4.
13. Dangor Y et al. Accuracy of clinical diagnosis of genital ulcer disease. Sexually Transmitted Diseases. 17: 184-189 (1990).

14. Rothenberg R. et al. The clinical diagnosis of urethral discharge. *Sexually Transmitted Diseases*. 10:24-28 (1983).
15. Islam M, Latif A, Burton T, Piot P. Analysis of the cost-effectiveness of approaches to STD case management. Paper presented at 10th International Meeting of the ISSTD, Helsinki, Aug 29-Sept 1, 1993.
16. Dallabetta G, Laga M, Lamprey P. Control of Sexually Transmitted Diseases: A handbook for the design and management of programs. AIDSCAP/Family Health International, Arlington, Virginia, 1996.
17. Bowie WR. Urethritis in Males. In Holmes KK, Mardh P-A, Sparling PF, et al., eds. *Sexually Transmitted Diseases*. New York: McGraw-Hill Inc, 1990: 627-639.
18. Vuylsteke B, Bastos R, Crucitti T, et al. Evaluation of clinical algorithms for genital discharge: a pilot study in Mozambique. In: Abstract book of the 10th International Meeting of the International Society of STD Research. Helsinki: Abstract 54; 1994.
19. Behets F, Williams Y, Brathwaite A, et al. Effective use of algorithms for management of vaginal discharge in women attending a Jamaican STD clinic. *Clin Infect Dis* 1995; 21:1450-1455.
20. Vuylsteke B, Laga M, Alary M, et al. Clinical flowcharts for the screening of women for gonococcal and chlamydial infection: evaluation of pregnant women and prostitutes in Zaire. *Clin Infect Dis* 1993; 17: 82-88.
21. Cates W Jr, Farley TMM, Rowe PJ. Worldwide Patterns of Infertility: Is Africa Different? *Lancet* 1985; 2:596-598.
22. Bogaerts J, Vuylsteke B, Martinez W, et al. Simple algorithms for the management of genital ulcers in developing countries: an evaluation in a primary health care center in Kigali, Rwanda. *Bull WHO* (In Press).
23. Technical report series no. 810. Management of patients with sexually transmitted diseases. Geneva: World Health Organization, 1991.
24. Brathwaite A, et al. The decentralization of syphilis screening for improved care in Jamaica public clinics. *American Journal of Public Health*. 87 (6); 1019-1021.

**Functional Organizational Chart
Latin America & Caribbean Regional Office
FHI/AIDSCAP**

